WHAT IS CLAIMED IS:

1. A reactor cooling system, which comprises:

a reactor pressure vessel having core internals including core support members for supporting fuel rods disposed in a core;

a reactor containment for containing said reactor pressure vessel;

a lower drywell which is a space for containing a bottom side portion of said reactor pressure vessel, said lower drywell being disposed in a lower portion of said reactor pressure vessel;

reactor recirculation pumps for circulating cooling water in said reactor pressure vessel, said reactor recirculation pump being disposed in the bottom side portion of said reactor pressure vessel in such a manner that a side of a motor portion of said reactor recirculation pump is projected into said lower drywell; and

heat exchangers disposed in said lower drywell, the cooling water circulated by said reactor recirculation pump passing through said heat exchanger, wherein

number of said reactor recirculation pumps is 4 or 6, and said reactor recirculation pumps are arranged with nearly equal angular spacing.

2. A reactor cooling system according to claim 1,

wherein each of said heat exchangers is used for two of said reactor recirculation pumps.

3. A reactor cooling system according to claim 1, wherein input power to power supplies for driving said reactor recirculation pumps is supplied from a single-train power supply system.

4. A reactor cooling system according to claim 1, wherein when at least one of said reactor recirculation pumps stops during normal operation, all the other of said reactor recirculation pumps are stopped.

5. A reactor cooling system, which comprises:

a reactor containment for containing a reactor pressure vessel;

a lower drywell which is a space for containing a bottom side portion of said reactor pressure vessel, said lower drywell being disposed in a lower portion of said reactor pressure vessel;

reactor recirculation pumps for circulating cooling water in said reactor pressure vessel, said reactor recirculation pump being disposed in the bottom side portion of said reactor pressure vessel in such a manner that a side of a motor portion of said reactor recirculation pump is projected into said lower drywell;

a lower shroud for containing fuel rods therein, said

lower shroud being disposed inside said reactor pressure vessel; and

an upper shroud mounted on said lower shroud, said upper shroud having an outer diameter lager than an outer diameter of said lower shroud, wherein

a runner of each of said reactor recirculation pumps driven by said motor portion is disposed in an inner bottom portion of said reactor pressure vessel and between an inner periphery of said reactor pressure vessel and an outer periphery of said lower shroud, and a through-cutout capable of passing the runner therethrough is formed corresponding to each of said runners at a position just above said runner in an outer peripheral side of said upper shroud.

6. A reactor cooling system according to claim 5, wherein said lower shroud comprises a cylindrical body portion, said upper shroud comprising a cylindrical body portion, said body portion of said upper shroud being formed so as to have a diameter larger than a diameter of said body portion of said lower shroud, said through-cutouts being formed in a periphery of said body portion of said upper shroud.

7. A reactor cooling system according to claim 5, wherein said lower shroud comprises a cylindrical body portion, said upper shroud comprising a cylindrical body

portion, said body portion of said upper shroud being formed so as to have a diameter larger than a diameter of said body portion of said lower shroud, a grid plate being disposed in a lower side portion of said body portion of said upper shroud, an upper shroud fringe portion being disposed in an upper side portion of said shroud, said through-cutouts being formed in said body portion of said upper shroud and said grid plate and said upper shroud fringe portion.

8. A reactor cooling system according to claim 5, which comprises:

heat exchangers through which cooling water circulated by said reactor recirculation pumps flows, said heat exchangers being disposed in said lower drywell; and

even number of said reactor recirculation pumps, said reactor recirculation pumps being arranged with nearly equal angular spacing, wherein

each of said heat exchangers is used for two of said reactor recirculation pumps.

9. A reactor cooling system according to claim 5, wherein input power to power supplies for driving said reactor recirculation pumps is supplied from a single-train power supply system.

10. A reactor cooling system according to claim 1, wherein when at least one of said reactor recirculation pumps stops during normal operation, all the other of said reactor recirculation pumps are stopped.